UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/840,817	04/24/2001	Erwin B. Bellers	US 010028	5944

24737   7590   06/16/2004

PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER
LEE, RICHARD J

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 06/16/2004   /4

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Application Number: 09/840,817
Filing Date: April 24, 2001
Appellant(s): BELLERS, ERWIN B.

MAILED

JUN 1 6 2004

Technology Center 2600

William A. Munck
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed June 1, 2004.

(1)   ***Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

(2)   ***Related Appeals and Interferences***

A statement identifying the related appeals and interferences which will directly affect or

be directly affected by or have a bearing on the decision in the pending appeal is contained in the

brief.

(3)   ***Status of Claims***

The statement of the status of the claims contained in the brief is correct.

(4)   ***Status of Amendments After Final***

The appellant's statement of the status of amendments after final rejection contained in

the brief is correct.

(5)   ***Summary of Invention***

The summary of invention contained in the brief is correct.

(6)   ***Issues***

The appellant's statement of the issues in the brief is correct.

(7)   ***Grouping of Claims***

Appellant's brief includes a statement that all the claims are grouped together and

provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8)   ***Claims Appealed***

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9)   Prior Art of Record

de Haan et al, "True-Motion Estimation with 3-D Recursive Search Block Matching",

IEEE Transactions on Circuits and Systems for Video Technology, Vol. 3, No. 5 (Oct. 5, 1993),

pp. 368-379.

(10)   Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (a) the invention was known or used by others in this country, or patented or described in a printed
> publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2.   Claims 1, 2, 4-6, 8-10, 12-14, 17, and 18 are rejected under 35 U.S.C. 102(b) as

being anticipated by de Haan et al of record ("True-Motion Estimation with 3-D Recursive

Search Block Matching).

De Haan et al discloses a 3-D recursive search block matching system, and the same

high definition television receiver, for use in a receiver, a method and video enhancement

mechanism for enhancing video information with spatio-temporal consistency, computer

program product within a computer usable medium, and video information signal as claimed in

claims 1, 2, 4-6, 8-10, 12-14, 17, and 18, comprising the same input connection receiving video

information and display on which enhanced images derived from the video information are

displayed (see section I of page 368); a video enhancement mechanism for enhancing the video

information with spatio-temporal consistency (see section IV, pages 370-371, section VI, pages

372-373, section VIII, pages 374-375); at least one enhancement unit (i.e., estimators (a and b),

spatial and temporal predictors, see section IV, pages 370-371) enhancing a characteristic other

than position of a selected pixel region of video information utilizing at least one candidate

enhancement vector of enhancement algorithms to generate an enhanced pixel region for each

candidate enhancement vector, each of the enhanced pixel region equivalent to enhancement of

the selected pixel region utilizing a respective candidate enhancement vector of enhancement

algorithms (see section II, pages 368-369, section IV, pages 370-371); a selection unit computing

an error (i.e., errors are assigned to candidate vectors using the SAD criterion of equation (6), see

sections II and IV) for each the enhanced pixel region utilizing a bias towards spatio-temporal

consistency of a respective enhanced pixel region with spatially adjacent pixel regions in a

picture containing the selected pixel region and with a counterpart pixel region in one or more

pictures successive with the picture containing the selected pixel region, the selection unit

selecting an enhanced pixel region having a best enhancement for spatio-temporal consistency

(i.e., a vector which minimizes the matching error is selected from the candidate set, thereby

providing the selected enhanced pixel region having a best enhancement for spatio-temporal

consistency, see Sections II, IV, and V); wherein the at least one candidate enhancement vector

of enhancement algorithms is selected from enhancement vectors determined to produce a best

enhancement for spatio-temporal consistency in enhancing pixel regions within a spatial and

temporal neighborhood of the selected pixel region (i.e., a vector which minimizes the matching

error is selected from the candidate set, thereby providing a selected candidate enhancement

vector which produces a best enhancement for spatial-temporal consistency within a spatial and

temporal neighborhood of the selected pixel region, see Sections II, IV, and V); and wherein the

error is computed on a per-pixel region basis for each pixel region within the video information

and for each candidate enhancement vector for a respective pixel region (i.e., block matching and

errors are assigned to candidate vectors using the SAD criterion of equation (6), see page 369,

column 1, page 371).

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth
> in section 102 of this title, if the differences between the subject matter sought to be patented and the prior
> art are such that the subject matter as a whole would have been obvious at the time the invention was made
> to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be
> negatived by the manner in which the invention was made.

4.   Claims 3, 7, 11, 15, 16, 19, and 20 are rejected under 35 U.S.C. 103(a) as being

unpatentable over de Haan et al of record ("True-Motion Estimation with 3-D Recursive Search

Block Matching).

De Haan et al discloses substantially the same high definition television receiver, for use

in a receiver, a method and video enhancement mechanism for enhancing video information with

spatio-temporal consistency, computer program product within a computer usable medium, and

video information signal as above, further including adding penalty to the error as the bias and

wherein the bias towards spatio-temporal consistency further comprises second penalty varying

for each candidate enhancement vector (i.e., penalties are added to the error function related to

the length of the difference vector between the candidate to be evaluated and some neighboring

vectors, see section VI, pages 372-373).

De Haan et al does not particularly disclose though, first penalty varying based upon

coefficients for each candidate vector as claimed in claims 3, 7, 11, 15, and 19. However, it is

noted the variable C from equation (26) as shown at page 373 of De Haan corresponds to

candidate vectors. And since the candidate vectors C comprise coefficients, it is therefore

considered obvious that the penalties that are added to the error function as shown in equation

(26) also varies based upon coefficients for each candidate enhancement vector within the

equation as claimed. Therefore, it would have been obvious to one of ordinary skill in the art,

having the De Haan et al reference in front of him/her and the general knowledge of penalty

addition to the error of candidate vectors, would have had no difficulty in recognizing the

coefficients present within the candidate vector C of equation (26) and that the penalties that are

added to the error function as shown in equation (26) also varies based upon coefficients for each

candidate enhancement vector within the equation for the same well known spatial and temporal

smoothing purposes as claimed.

(11)   Response to Argument

The appellant's analysis of the de Haan et al reference as shown at pages 5-7 of the Brief

filed June 1, 2004 is greatly appreciated.

Regarding the appellant's arguments at pages 7-8 of the Brief filed June 1, 2004

concerning in general that "... de Haan teaches a method of compensating for motion in a frame

rate conversion process by adjusting the position of pixels in intermediate fields. Furthermore,

the de Haan reference does not disclose enhancement vectors of enhancement algorithms.

Although de Haan uses candidate vectors, they are candidate motion vectors. These candidate

vectors are used to find the best correlation between a block of pixels in the current field and a

corresponding set in the previous field. As such, the vectors have nothing to do with

enhancement, as defined in the Appellant's specification ... The motion estimator is not

enhancing any characteristic of a pixel region; it is simply determining a positional relationship

between fields ...", the Examiner respectfully disagrees. The spatial and temporal predictions of

de Haan et al (see sections II and IV) involve motion estimation through the use of block

matchings where the minimum summed absolute differences between blocks are calculated to

select the best candidate block (i.e., with a corresponding best candidate vector indicating the

best displacement offset, see second sentence of Section IV of de Haan et al). And by providing

the best candidate block through the minimum SAD calculations, de Haan et al is providing the

best estimated block image and as such it is submitted again that de Haan et al provides the same

enhancement unit (i.e., estimators (a and b), see Section IV) enhancing a characteristic other than

position of a selected pixel region of video information utilizing at least one candidate

enhancement vector of enhancement algorithms to generate an enhanced pixel region for each

candidate enhancement vector, as claimed. It is further noted that de Haan et al is interested in

providing smoothness of images through spatial and temporal predications by adding penalties to

the error functions involved in block matching (see Section VI, pages 372-373). By smoothing

the images, de Haan et al provides the same enhanced pixel region equivalent to enhancement of

the selected pixel region utilizing a respective candidate enhancement vector of enhancement

algorithms as claimed.

Regarding the appellant's arguments at pages 8-9 of the Brief filed June 1, 2004

concerning in general that "... The candidate vectors of the Appellant's invention are

coefficients of enhancement algorithms, rather than displacement vectors describing a positional

relation between subsequent fields ... However, the best vector chosen in the Appellant's

invention contains coefficients for algorithms to enhance pixels in the current field ... The

Appellants respectfully submit that de Haan is referring to motion vectors while, in contrast, the

Appellants' claims are directed to enhancement vectors of enhancement algorithms ...", it is

submitted again that one skilled in the art would certainly have no difficulty in recognizing the

coefficients present within the candidate vector C of equation (26) of de Haan et al and that the

penalties that are added to the error function as shown in equation (26) also varies based upon

coefficients for each candidate enhancement vectors within the equation. And since de Haan et

al teaches the smoothing of images through spatial and temporal predictions by adding penalties

to error functions involved in block matching (see Section VI, pages 372-373), de Haan et al

provides the same enhanced pixel region equivalent to enhancement of the selected pixel region

utilizing a respective candidate enhancement vector of enhancement algorithms as claimed.

Regarding the appellant's arguments at pages 9-12 of the Brief filed June 1, 2004

concerning the section 103 rejection on claims 3, 7, 11, 15, 16, 19, and 20, and in general that a

prima facie case of obviousness has not been established, the Examiner respectfully disagrees. It

is submitted that the burden falls to the appellant to rebut with objective evidence of non-

obviousness, and mere argument does not overcome the prima facie case of obviousness (see In

re Palmer, 172 USPQ 126 (CCPA 1971)). With the above in mind, it is submitted again that that

one skilled in the art would certainly have no difficulty in recognizing the coefficients present

within the candidate vector C of equation (26) of de Haan et al and that the penalties that are

added to the error function as shown in equation (26) also varies based upon coefficients for each

candidate enhancement vectors within the equation, thereby rendering obvious the claimed

invention.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Richard Lee
Primary Examiner
Art Unit 2613

YOUNG LEE
PRIMARY EXAMINER

Richard Lee/rl
June 10, 2004

Conferees

Chris Kelley
Young Lee

CHRIS KELLEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510